

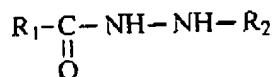
This listing of claims will replace the prior version in the application.

### Claims

Claims 1-13 (canceled)

14. (new) A substantially metal free stabilizing composition for chlorine-containing polymers:

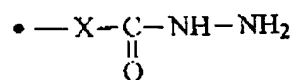
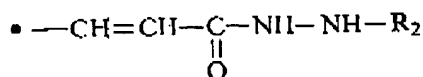
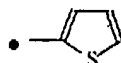
one or more hydrazides compounds having the following formula:



where

R<sub>1</sub> is selected from

- a C<sub>1</sub>-C<sub>30</sub> alkyl group (linear or branched), a monounsaturated or polyunsaturated C<sub>2</sub>-C<sub>30</sub> alkyl group, a C<sub>1</sub>-C<sub>30</sub> alkyl group containing heteroatoms, a C<sub>1</sub>-C<sub>30</sub> alkyl group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group
- a phenyl group, benzyl group, naphthyl group or, toluyl group substituted with -OH, -Cl, -alkoxy, -alkyl, - cycloalkyl, -COOR or -OCOR where R is a C<sub>1</sub>-C<sub>12</sub> alkyl group



- $\text{---CH=CH-C(=O)OR}_4$
- $\text{C}_6\text{H}_5 - (\text{CH}_2)_n -$  wherein n ranges from 1 to 5 or
- $-\text{NH-NH}_2$ ;

$\text{R}_2$  is selected from  $-\text{H}$  or  $-\text{CO-R}_3$ ;

$\text{R}_3$  and  $\text{R}_4$  are independently selected from:

- a  $\text{C}_1\text{-C}_{30}$  alkyl group (linear or branched), a monounsaturated or polyunsaturated  $\text{C}_2\text{-C}_{30}$  alkyl group, a  $\text{C}_1\text{-C}_{30}$  alkyl group containing heteroatoms, a  $\text{C}_1\text{-C}_{30}$  alkyl group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group or
- a phenyl group, a naphthyl group or a phenyl group substituted by  $-\text{OH}$ ,  $-\text{Cl}$ , alkoxy, alkyl, cycloalkyl,  $-\text{COOR}$  or  $\text{OCOR}$  where R is a  $\text{C}_1\text{-C}_{12}$  alkyl group;

X is selected from

- a  $\text{C}_1\text{-C}_{30}$  alkylene group (linear or branched), a monounsaturated or polyunsaturated  $\text{C}_2\text{-C}_{30}$  alkylene group, a  $\text{C}_1\text{-C}_{30}$  alkylene group containing heteroatoms, a  $\text{C}_1\text{-C}_{30}$  alkylene group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group or
- an ortho, meta, or para phenylene group, a naphthylene group, a phenylene group substituted by  $-\text{OH}$ ,  $-\text{Cl}$ , alkoxy, alkyl, cycloalkyl,  $-\text{COOR}$  or  $\text{OCOR}$  where R is a  $\text{C}_1\text{-C}_{12}$  alkyl group;

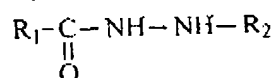
$\text{R}_1$  and  $\text{R}_2$  are linked by a covalent bond when  $\text{R}_1$  is  $-\text{CH=CH-}$  and  $\text{R}_2$  is  $-\text{CO-}$ ;

and a co-stabilizer selected from: polyol alcohols, disaccharide alcohols, perchlorate compounds, glycidyl compounds, layered lattice compounds, zeolite

compounds, phosphite compounds, beta-diketones, beta ketoesters, mercaptocarboxylic esters, metal soaps or mixtures thereof.

15. (new) A substantially metal free stabilizing composition for chlorine-containing polymers:

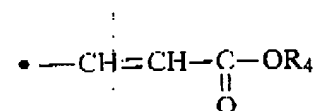
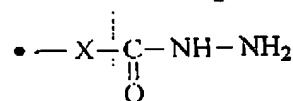
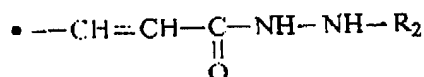
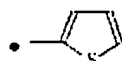
one or more hydrazides compounds of the formula



where :

R<sub>1</sub> is selected from

- a C<sub>1</sub>-C<sub>30</sub> alkyl group (linear or branched), a monounsaturated or polyunsaturated C<sub>2</sub>-C<sub>30</sub> alkyl group, a C<sub>1</sub>-C<sub>30</sub> alkyl group containing heteroatoms, a C<sub>1</sub>-C<sub>30</sub> alkyl group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group
- a benzyl group, a naphthyl group, a toluyl group, a toluyl group substituted with -OH, -Cl, -alkoxy, -alkyl, - cycloalkyl, -COOR or OCOR where R is a C<sub>1</sub>-C<sub>12</sub> alkyl group, or a phenyl group, or a phenyl group substituted with -OH, -Cl, -alkoxy, -alkyl, - cycloalkyl or OCOR where R is a C<sub>1</sub>-C<sub>12</sub> alkyl group



- -NH-NH<sub>2</sub> ;

R<sub>2</sub> is selected from -H or -CO-R<sub>3</sub>;

R<sub>3</sub> and R<sub>4</sub> are independently selected from:

- a C<sub>1</sub>-C<sub>30</sub> alkyl group (linear or branched), a monounsaturated or polyunsaturated C<sub>2</sub>-C<sub>30</sub> alkyl group, a C<sub>1</sub>-C<sub>30</sub> alkyl group containing heteroatoms, a C<sub>1</sub>-C<sub>30</sub> alkyl group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group or
- a phenyl group, a naphthyl group, or a phenyl group substituted by -OH, -Cl, alkoxy, alkyl, cycloalkyl, -COOR or OCOR where R is a C<sub>1</sub>-C<sub>12</sub> alkyl group;

X is selected from

- a C<sub>1</sub>-C<sub>30</sub> alkylene group (linear or branched), a monounsaturated or polyunsaturated C<sub>2</sub>-C<sub>30</sub> alkylene group, a C<sub>1</sub>-C<sub>30</sub> alkylene group containing heteroatoms, a C<sub>1</sub>-C<sub>30</sub> alkylene group substituted by one or more substituted or unsubstituted phenyl groups, an epoxy function, a cycloaliphatic group, a heterocyclic group, one or more halogen atoms, a hydroxy group or an alkoxy group or
- an ortho, meta, or para phenylene group, a naphthylene group, a phenylene group substituted by -OH, -Cl, alkoxy, alkyl, cycloalkyl, -COOR or OCOR where R is a C<sub>1</sub>-C<sub>12</sub> alkyl group;

R<sub>1</sub> and R<sub>2</sub> are linked by a covalent bond when R<sub>1</sub> is -CH=CH- and R<sub>2</sub> is -CO-

and a co-stabilizer selected from: polyol alcohols, disaccharide alcohols, perchlorate compounds, glycidyl compounds, layered lattice compounds, zeolite compounds, phosphite compounds, beta-diketones, beta ketoesters, mercaptocarboxylic esters, metal soaps or mixtures thereof.

16. (new) The stabilizing composition of claim 14 wherein:

$R_1$  is selected from

- a  $C_1$ - $C_{17}$  alkyl group
- $X-CO-NHNH_2$  where  $X$  is a  $C_1$ - $C_{17}$  alkylene group or
- an ortho substituted phenol, a benzene ring, a naphthol, or a cyclo-pentadiene-2,4; and

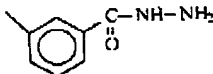
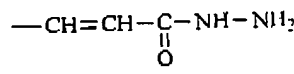
$R_2$  is selected from H or  $COR_3$  wherein  $R_3$  is a  $C_1$ - $C_{17}$  alkyl group.

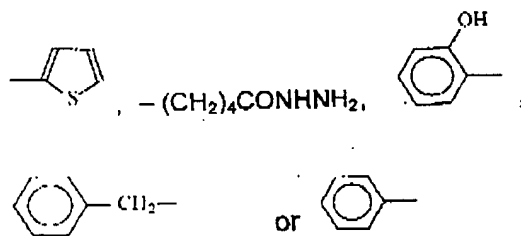
17. (new) The stabilizing composition of claim 16 wherein  $R_1$  is selected from methyl, butyl, octyl, ethyl-2-hexyl, stearyl or lauryl.

18. (new) The stabilizing composition of claim 16 wherein  $R_3$  is selected from methyl, butyl, octyl, ethyl-2-hexyl, stearyl, lauryl or benzene ring.

19. (new) The stabilizing composition of claim 16 wherein said  $C_1$ - $C_{17}$  alkylene group is selected from methylene, butylene, octylene, ethyl-2-hexylene, stearyl, dodecylene, or a 1,3-substituted phenylene group.

20. (new) The stabilizing composition of claim 14, wherein at least one of said one or more hydrazides comprises a hydrazide wherein

$R_1$  is selected from  ,  ,  $-C_{17}H_{35}$  ,



and  $R_2$  is hydrogen.

21. (new) The stabilizing composition of claim 14, further comprising a co-stabilizer selected from hydrotalcites, trimethylolpropanol, zeolite P, perchlorate compounds, phosphates, an epoxidized soya bean oil, beta-dicarbonyl compounds or mixtures thereof.

22. (new) The stabilizing composition of claim 14, further comprising a zinc carboxylate, an alkali metal carboxylate, an alkaline earth metal carboxylate, an aluminum carboxylate or mixtures thereof.

23. (new) The stabilizing composition of claim 22, wherein said alkali metal carboxylate is calcium stearate.

24. (new) The stabilizing composition of claim 14, further comprising one or more stabilizers, processing aids, lubricants, plasticizers, pigments, fillers, epoxidized fatty acid esters, antioxidants, UV absorbers, light stabilizers, optical brighteners, impact modifiers, processing aids, gelling agents, antistatic aids, biocides, fungicides, metal passivators, flame retardants, blowing agents, antifog agents, compatibilizers, antiplateout agents or mixtures thereof.

25. (new) The stabilizing composition of claim 24, wherein said one or more stabilizer is selected from CaZn systems, BaZn systems, tin systems, amino systems, thiouracil systems, latent mercaptide systems, tris (2-hydroxyethyl) isocyanurate, alphaphenyl indole, pyrrolidines, and mixtures thereof.

26. (new) A chlorine-containing polymer containing the stabilizing composition as claimed in claim 14.

27. (new) The chlorine-containing polymer of claim 26 wherein said chlorine-containing polymer is selected from polyvinyl chloride homopolymer, post chlorinated polyvinyl chloride, or polyvinyl chloride copolymers.

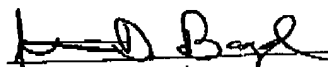
28. (new) A chlorine-containing polymer pipe or pipe fitting containing the stabilizing composition claimed in claim 14.

29. (new) A chlorine-containing polymer sheet, rigid film, flexible film, or profile containing the stabilizing composition claimed in claim 14.

30. (new) The chlorine-containing polymer of claim 26 wherein said stabilizer is present in an amount of from 0.2 to 5 phr.

31. (new) The chlorine-containing polymer of claim 26 wherein said stabilizer is present in an amount of from 1 to 2 phr.

Respectfully submitted.

  
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